

United States Patent and Trademark Office  
- Sales Receipt -

08/25/2005 DJONES1 00000001 150030 10645543

01 FC:1251 120.00 DA



DOCKET NO: 241538US3X

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :  
FUMIO KINOSHITA, ET AL. : EXAMINER: BATSON, V.  
SERIAL NO: 10/645,543 :  
FILED: AUGUST 22, 2003 : GROUP ART UNIT: 3671  
FOR: CONTINUOUS UNDERGROUND :  
TRENCH EXCAVATING METHOD AND  
EXCAVATOR THEREFOR

SUPPLEMENTAL RESPONSE

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

In response to the Office Action dated February 22, 2005 and the notice of non-responsiveness dated Jul 11, 2005, Applicants respond as follows:

The Examiner had objected to the specification because equations 2 and 3 allegedly reduce to  $F_z=0$ . Applicants replied in the response of April 22, 2005 that equation 2 is directed to the penetration resistance during penetration operation whereas the value of the frictional resistance  $F_{fz}$  in equation 3 is calculated by operating the lift cylinders in an unloaded (unlanded) floating state (page 9, lines 7-10).

According to the notice of non-responsiveness, if equation 3 represents resistance when the trencher is floating in the air, why does the cutter post volume or the liquid specific gravity  $\gamma$  around the cutter post affect frictional resistance. In reply, Applicants note that while equation 3 refers to the excavator being in an "unlanded, floating state in the air," this does not require that it be out of the environment of the trench.